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THRU : Chief, Trade Controls Branch  
THRU : Chief, Services Division  
THRU : Chief, Industrial Division  
THRU : Chief, Producers Equipment Branch

Soviet position re direct-reading emission-type spectrometers.

The following assessment of the Soviet position in the field of direct-reading emission-type spectrometers has been prepared in connection with the proposed shipment of quantometers from Switzerland to the USSR:

1. In the general field of quantitative spectral analysis, the USSR has been actively engaged in designing and building a wide range of advanced types of spectrometers for perhaps five to ten years. Western observers who have checked sample Soviet equipment models on display at the 1958 Brussels World Fair and at the Exposition held in New York during the summer of 1959 have generally agreed that technically these machines are well-designed and competent.
2. It is likely, however, that output of some types of spectrometers falls short of industrial and research needs. Only one or two plants are believed to be producing these machines, and output is probably limited to small series production.
3. There may be specific models of U.S. spectrometers for which the USSR has not yet produced a counterpart; however, the Soviet scientists appear to be capable of producing even the most sophisticated types available in the West.
4. The specific attributes of the Model 8200 optical emission type Industrial Research Quantometer produced by the Applied Research Laboratories affiliate in Lausanne, Switzerland, when compared with the Soviet DFS-10 quantometer (which was displayed at the New York Exposition) do appear to be significant. For example, the ARL quantometer has a greater spectral range--2100 to 6800 angstrom units as compared with the DFS-10's 2200 to 5500 angstrom unit range. What this indicates is that the DFS-10 would not be able to detect, say, the element cerium, which has an angstrom unit rating of 5699. The ARL quantometer also is probably more accurate in its analysis determinations than the DFS-10. However, it should be borne in mind that the USSR has had other spectrometer devices on exhibit as early as 1958 with an angstrom unit range from 2000 to 10,000. Also, the DFS-10 was produced

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in 1958, and it would be foolhardy to assume that Soviet scientists have not or will not produce a more capable and sophisticated model, as the technical requirements for a greater angstrom unit range, at least, are not that demanding. Whether the Soviet Union has all it needs of these more sophisticated types of spectrometer is another matter—quite likely it does not.

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